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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,836	07/01/2003	Tommi Jokiniemi	2072-00065	5163
26753 7590 09/10/2007 ANDRUS, SCEALES, STARKE & SAWALL, LLP 100 EAST WISCONSIN AVENUE, SUITE 1100 MILWAUKEE, WI 53202			EXAMINER KHOLDEBARIN, IMAN K	
			ART UNIT 3737	PAPER NUMBER
			MAIL DATE 09/10/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/611,836

Applicant(s)

JOKINIEMI ET AL.

Examiner

I Kenneth Kholdebarin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 07/01/03.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 line 9, fails to explain what role does 'at least two planar images' play in the overall process and need they be discrete or incorporated into a 3D volume?

3. Claim 1 line 15, fails to explain the estimated configuration all of a line (boundary contour), area and 3D relief map of the uncompressed region or is it always only a two dimensional feature that serves to define the entry point?

### **Claim Rejections - 35 USC § 102**

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

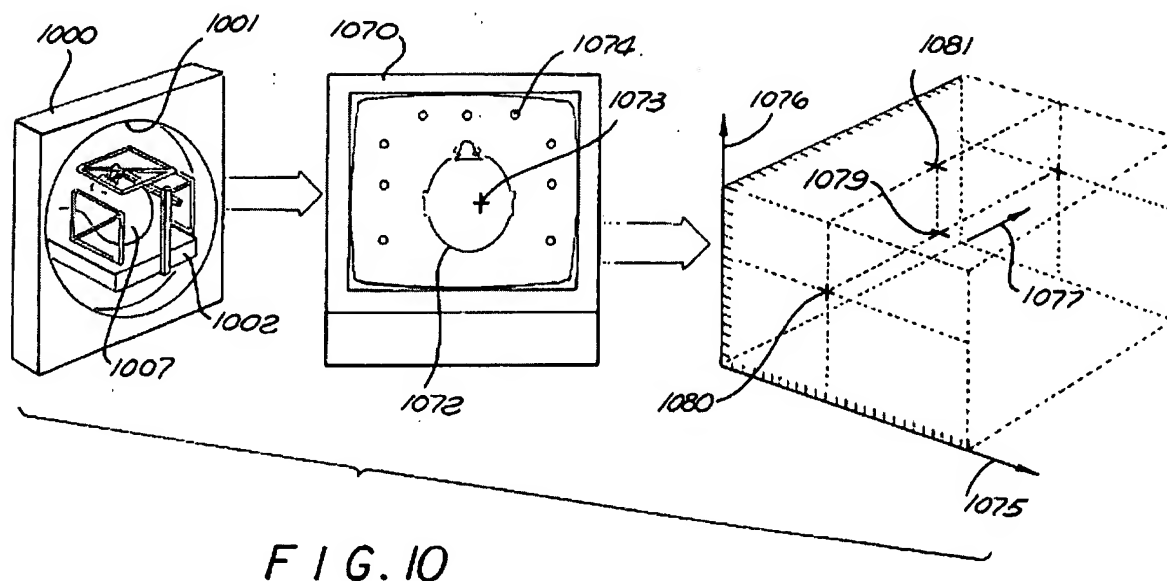
(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who

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has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent

5. Claims 1, 15 as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Cosman et al. (US 5,947,981).

Cosman teaches on Fig. 9-11 a method of clamping of an organ in a fixed position; radiating the said body portion; calculating the image data; selecting an entering point for an invasive instrument; determining a moving direction and finally displaying the moving direction in a coordinate system.



Re Claim 29: In addition to the steps disclosed above, Cosman teaches the use of marker on the surface of the body in the invention. Cosman discloses that the graphic reference means could be attached to the patient's body as an alternative. By having markers on the body, such structures

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could be secured to the body for scanning and the data with fiducial markers used to put the anatomical data points in stereotactic coordinate space. Attachment to the body could be done with conformal means, straps, or stick-down devices., (Col. 5, line 65- Col. 6, line 5).

### **Claim Rejections - 35 USC § 103**

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 40 as understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Cosman (US 5,947,981).

Cosman fails to specifically point out the measurement done between the tip of the instrument and the location of the lesion but Cosman teaches the means of transforming from the two-dimensional coordinate system of the image scan data to the three-dimensional coordinate system is well known in the art, and can be done graphically or non-mathematically by measuring distances on the scanner image or by doing mathematical transformations and other processes. Once all of the two dimensional scan image data is transferred to the stereotactic coordinate system of the over-arm and the localizer, then the entire data stack can be put into a three-dimensional representation if desired, and targets and anatomical structures outlined,

contoured, and segmented. Calculations of trajectories of beams can be done, and paths for stereotactic probes or radiation beams through the tissue in three dimensions to achieve a given target position or target volume can easily be done. This is advantageous for three-dimensional treatment planning. An example of an existent 3-D planning system is the XKnife stereotactic radiosurgery and stereotactic radiotherapy programs from Radionics, Burlington, Mass. Once the selected target point 1073 has been made, its coordinates relative to the space of the over-arm and/or the space of the graphic reference means and couch can be determined. Referring then to the right-hand figure in FIG. 10, the coordinate axes are indicated by the axis lines with arrows 1075, 1076, and 1077, which could be, respectively, the Vertical, AP, and Lateral axes relative to the patient or the couch. The target position in this coordinate space is represented by the point 1079, and this would correspond to the selected target point, for example 1073, in one of the scan image data two-dimensional data sets. The coordinate reference frame represented by the axes 1075, 1076, and 1077 also have scale lines on them indicated by the tick marks on those axes, and these would correspond to a quantitative coordinate measuring scale associated with the graphic reference means and also specifically referenced to the over-arm structure and/or the platform 971, to which it is attached in the example of FIG. 9.

Therefore it would have been obvious to one ordinary skill in the art at the time of the invention was made to use optics and 2D and 3D projection to calculate the spacing between the tip of the invasive instrument and the location of the lesion within the organ in order to better navigate the surgical instrument and have a control on the surgical path.

Claim 2-14, 16-28, 30-39 and 41-48 as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Cosman (US 5,947,981) in view of Derechisky (US 4,583,537).

Cosman teaches The ring can accept graphic reference localizers which enable scanner index data from tomographic scanning such as CT, MR, P.E.T., etc. to be used to relate two-dimensional or three-dimensional tomographic scan data from an image scanner to the coordinate reference frame of the ring 11. Once the "stereotactic coordinates" of a selected target position seen in the image scan data are determined relative to ring 11, (Col. 1, line 18-25).

Derechinsky discloses a convergent of a multibeam unit for radiation which is angularly displaceable around a virtual axis which intersects the radiation axis of same, said lineal accelerator being combined with a stereotaxic device constituting a frame angularly displaceable around an axis which is substantially normal to the axis of angular displacement of the lineal accelerator and contains the isocenter of same; the angular displacement arches of the radiation axis of said lineal accelerator and of said stereotaxic frame defining a virtual spherical cap in the center of which and coinciding with said isocenter, there is located the area to be radiated on said virtual spherical cap which determines multiple radiation entries converging on said area.


Therefore it would have been obvious to one ordinary skill in the art to combine the method of multibeam unit thought by Derechinsky and combine that with teachings of Cosman for the surgical navigation device in order to define the path towards the lesion within the tissue.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to I Kenneth Kholdebarin whose telephone number is 571-270-1347. The examiner can normally be reached on M-F 8 AM- 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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08/25/2007

  
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